



May 15, 2003

Mr. Richard H. Karney, P.E., Manager (richard.karney@ee.doe.gov)
Energy Star Program
Building Technologies Program
U. S. Department of Energy
Washington D.C.

Re: Energy Star Program - Water Heater Criteria *Revised* Response

Dear Mr. Karney:

Let me begin by stating our interest and full support in working with your Department to add the residential water heater category to the ENERGY STAR Program.

As requested, the following represents our response to the paper on the analysis of potential approaches to developing "Energy Star[®] Labeling".

Commentary to the Department:

We suggest the ENERGY STAR labeling criteria be developed and individually listed for five of the following seven product sub-categories. These individual sub-categories would offer a wide range of products to the general public and drive usage of higher efficiency products on a national level within each product sub-category. This will ensure maximum adoption rates for all consumers, regardless of application requirements.

1. **Residential gas storage:** This is by far the largest category for gas water heaters (approximately 5 million sold annually). It includes heaters up to (and including) 75,000 Btu input models (per ANSI standard ANS Z21.10.1). EF ratings are used to compare the available models in this category (as specified by DOE/GAMA listing requirements). The most efficient models in this category are readily available and accessible to the general public. Adding the ENERGY STAR label would influence higher energy efficient model sales and have a significant impact on overall energy consumption. The ENERGY STAR energy efficiency level should be based on non-condensing gas water heaters. (Residential Condensing gas storage water heaters should be included in this category.)
2. **Commercial gas storage:** Higher Btu input models (>75,000Btu) are increasingly being used in residential applications. A majority of the 75,000-100,000 Btu models are sold and installed in residential applications. Large homes, specialty baths and multi-head showers have become very popular and require hot water delivery that only a high Btu models can provide. The need for higher Btu inputs drive these customers (who are willing to pay for efficiency) to "Commercial" products (as defined by the ANSI standard ANS Z21.10.3). This category needs to be included in the ENERGY STAR program.

The “thermal efficiency” and “stand-by loss” of these heaters are tested. A wide range of thermal efficiencies exists in this product category (from 78% to 99%), while the stand-by losses do not vary significantly. Therefore, Thermal Efficiency should be the basis for determining ENERGY STAR compliance in this category (EF ratings are not measured nor published on “commercial” gas storage heaters). Promoting these high efficiency products (90%+ thermal efficiency) would greatly reduce the annual energy consumption in this product category. Additionally, by excluding high Btu input storage units above 75,000 Btu’s, an unfair advantage may be provided to “instantaneous” gas heaters, which are not as efficient as many commercial tank type units (different efficiency ratings making comparisons difficult).

3. **Instantaneous/Tankless gas:** The instantaneous/tankless category of heaters, while small in unit volume, can produce hot water for a whole house application. These models include gas burners that are well above 75,000 Btu’s. While these units are tested to the residential tank type energy efficiency rating (energy factor), over 75,000 Btu’s are classified by the industry as commercial water heaters. Due to installation and cost limitations, this category should be included as a separate category in the ENERGY STAR program. The criteria should focus on the most efficient instantaneous models currently available. We believe instantaneous products should not be considered as the only technology to qualify for the ENERGY STAR Label. They are not considered to be generally applicable direct replacements for gas storage heaters because of the installation limitations, gas supply requirements and the high initial cost resulting in a very long payback period. They have only become popular in high cost energy areas where the price of gas may provide a little faster payback or where small physical space is a key factor.
4. **Electric Storage:** Similar to gas storage, a large number of these units are produced and sold annually (4+ million). Standard storage type electric water heaters have a wide range of operating efficiencies (EF’s from .84 to .95). The high efficiency models are widely available and would be used more often if added to the ENERGY STAR program. Creating ENERGY STAR Labeling for the most efficient electric storage products would have a large impact on overall energy usage.
5. **Solar & Heat Pump Water Heaters (Advanced concepts):** Solar water heaters and Heat Pump Water Heater’s have geographic limitations. A large percentage of the population, willing to participate in the ENERGY STAR program, would be excluded if these advanced concepts are the only “electric” products available under the ENERGY STAR program. These products should be allowed to participate in the program under their own category, thus competing with storage electric heaters based on cost, reliability, and performance...not on ENERGY STAR labeling.
6. **Instantaneous electric:** While widely available, this category is mainly used in “point of use” applications making inclusion in the ENERGY STAR program difficult. Multiple units must be used to provide enough water for whole house applications. A direct comparison to storage electric products isn’t valid. Most purchases of these products are driven by application only and the range of efficiency options is minimal (electric elements are 98% efficient and without storage, standby losses are minimal). Inclusion in the ES program would yield minimal results.

7. **Commercial Electric storage water heaters:** These products are not widely used in residential applications and there is little performance variation in current models to allow for an ENERGY STAR classification that would yield incremental energy savings.

We also believe the Options provided in the April 4, 2003 analysis are too broad and/or restrictive to provide maximum energy conservation results. We recommend assigning ENERGY STAR LABEL criteria for five of the above seven categories.

General comments on current Options:

I. Option 1 - Best performing conventional water heating technologies.

We agree that this option has merit. It includes all residential classified products. The issues with this option include:

- a. Oil products should not have a separate EF criteria...oil should be included in the gas products criteria.
- b. Solar & Heat Pump Water Heaters should be given separate EF criteria from electric storage heaters.
- c. Commercial gas storage water heaters, when used in residential applications, should be included in the labeling program based on separate "thermal" efficiency criteria.

II. Option 2 – Best performing gas and advanced electric water heating technologies

We do not agree with this limited option as it would only offer an ENERGY STAR LABELED product to a portion of the consumers in the USA. This would eliminate the opportunity to promote energy savings products on standard electric storage water heaters to 4+ Million customers per year, therefore missing an opportunity to impact overall energy consumption from this consumer.

We are in favor of introducing the ENERGY STAR PROGRAM for the Water Heater product category in January 2004 to coincide with the new NAECA requirements. Options for introducing the ENERGY STAR criteria can be further discussed in future meetings.

We look forward to working with the Department of Energy's ENERGY STAR Program.

Thank you.

Sincerely,

Richard A. Germek, Director – Strategic Marketing